Medical School Hotline

Public Health In Medical Education

Seiji Yamada MD, MPH and Neal Palafox MD, MPH

A woman at a riverbank sees somebody caught in the current. She jumps into the water, rescues the nearly drowned victim, and brings her to safety. As soon as she is back at the riverbank, she sees somebody else in the water. She rescues that person, too. Again, as soon as she is back, she sees another person drowning—then yet another. Finally, she decides that it is a better use of her time to go upstream to figure out who is pushing these people into the water.[1] This classic parable illustrates the relationship between medicine and public health. While clinical medicine can be of benefit in relieving suffering, without an understanding of what is at the root of suffering, we cannot make any headway into preventing it, and we will always be faced with drowning victims. With this viewpoint in mind, we examine the role of public health in medical education.

Recent changes in medicine itself encourage a more populational approach to medicine for all practitioners. Evidence-based medicine is a means for applying the results of data collected on populations of patients to the clinical setting of the individual patient. Managed care applies populational data to rationalize medical care, contain costs, and increase profits. Given, however, that the goal of proprietary organizations is to externalize costs, they cannot fulfill the role of meeting the needs of society as a whole, particularly the needs of the most disadvantaged. Thus, despite the growth of managed care, the public sector will be the ultimate ensurer of the public's health. The need for physicians to be able to practice effectively in the present and future health care environment has prompted the American Association of Medical Colleges to call for enhancement in the teaching of populational issues in U.S. medical education.[2]

The four perspectives that comprise the foundations of the curriculum at the University of Hawai'i John A. Burns School of Medicine (JABSOM) are (1) population, (2) behavioral, (3) biological, and (4) clinical.[3] Among JABSOM faculty, there is agreement that the populational and behavioral perspectives are insufficiently emphasized and integrated into the curriculum. Thus this past academic year, some public health issues have been introduced into the first-year health care problems that students encounter as part of their Problem-Based Learning (PBL) curriculum. For example, the diarrhea case was rewritten so that it is now that of an infant from the Marshall Islands, so that students examine public health aspects of diarrheal disease in developing countries, the number one cause of childhood mortality worldwide. During the mid-trimester evaluation and feedback session, a student asked whether such public health concepts would be covered on the final examination. In this question there was a plea. Students were saying, we are already laboring under the weight of basic science and clinical information overload. We cannot learn public health in addition to medicine. During the feedback session, the faculty replied that, as they were in medical school, that the focus of the exam would be medical. Indeed, the examination largely tested biological and clinical concepts. Perhaps, however, an appropriate response to the student query would have been the parable above.

Indeed, its unrealistic to expect that medical students will learn the material that students of public health must master. In some ways, the situation is analogous to that of our medical school colleagues in the basic sciences. They cannot expect medical students to learn the material that they expect their graduate students to master. The difficulty is deciding to what depth medical students need to know the material and presenting the material in such a way that makes it relevant and useful to the work of medical practitioners. The key is to keep in mind the principles of PBL: keep the material relevant to the case, i.e., integrate the material into the health care problems.

How, then, can the teaching of public health concepts at the medical school be improved? Firstly, the PBL curriculum needs to be re-examined to see if the cases cover the diseases that cause the greatest morbidity and mortality. The health care problems, initially adapted from the curriculum of McMaster University in Ontario, Canada, follows an organ-based sequence in Units 2 through 4. (Unit 1: health and illness. Unit 2: cardiovascular, respiratory, and renal. Unit 3: gastrointestinal, endocrine, and hematology. Unit 4: neurologic, locomotor, brain, and behavior. Unit 5: the life cycle, covers reproductive, child, and geriatric health.) Some subjects that do not fit into the sequence are not given adequate attention. Recent graduates have identified nutrition and infectious disease as two such areas. (Note that they did not identify oncology as a deficiency despite the lack of a subunit on oncology. There are sufficient numbers of problems of patients with cancer interspersed through Units 1 through 5.)

Certain relatively rarely encountered clinical problems introduce relevant biologic subjects. Thus, in the past, the gastrointestinal subunit of Unit 3 included cases of Zollinger-Ellison syndrome, which introduces the endocrine control of digestion, and celiac sprue, which introduces intestinal absorption. While coverage of such basic science issues is important, a populational perspective on curriculum design would demand more attention to common diagnoses. From a clinical standpoint, while it is important that clinicians recognize rare diseases, it is imperative that primary care practitioners know common diseases thoroughly. The peptic ulcer problem now concentrates on Helicobacter. Further, might the gastrointestinal/endocrine/metabolism sequence be an appropriate place to cover nutrition? Overnutrition is now covered in a health care problem on obesity. Subjects such as infectious disease and nutrition do not need their own subunits. Rather, they can be addressed in the curriculum as they arise within the health care problems. Such a strategy would be consistent with the PBL philosophy.

The choice of diseases to be included in the curriculum should take into account the global epidemiology of disease,[4] the epidemiology of the U.S.,[5] the epidemiology of Hawaii,[6] and the epidemiology of the Pacific Islands. Kept in mind is the mission of JABSOM, which includes improving the health of the Pacific Islands. The epidemiology of Hawaii and the Pacific are specific to those area of the world and is different from that of the U.S. as a whole. While such data should help in curriculum development, they should also be made explicit to students so that the desire to maximize their potential to improve the lot of the most people will motivate medical students to learn about the most prevalent diseases.

As students formulate their learning agenda from their health care problems, learning issues with populational content are selected. Typically, the literature is searched for geographic, ethnic, gender, and socioeconomic risk factors; incidence, prevalence, and mortality rates for the medical problems under study. As students wrestle with the utility of diagnostic tests, epidemiologic concepts such as predictive value are introduced. Students are encouraged to familiarize themselves with the scientific evidence for the efficacy of therapeutic regimens. Indeed, the concepts of evidence-based medicine are populational, epidemiologic and biostatistical concepts applied to daily patient care.[7]

The practice of clinical medicine is like the task of the rescuer downstream—to save people from drowning in the river. At its root it is a moral endeavor, the reason why we entered medicine. Yet, it seems an abdication of responsibility for physicians to exclude from their purview what is happening upstream. Those who witness suffering have a special responsibility to pay heed to what causes that suffering. The task of keeping people from being pushed into the river in the first place involves effecting more fundamental changes. The rewards may not be immediate, but they may be more profound. It is evident that public health, too, is a moral endeavor. After all, the Greek god of medicine, Asclepius, had two daughters, Panacea and Hygeia, the goddesses of healing and of health. As the two fields are sister disciplines, medical practitioners should also learn the fundamentals of public health. For those who teach medicine, we are charged with inspiring our students to look upstream.

1. McKinlay, JB. A case for refocusing upstream: The political economy of illness. Conrad P. The sociology of health and illness, 5th ed. New York: St. Martin's Press, 1997.
2. American Association of Medical Colleges. Report II contemporary issues in medicine: medical informatics and population health. Washington, D.C.: Author, 1998.
3. John A. Burns School of Medicine. General guide to the M.D. program. Unpublished guidebook. The general guide actually lists three perspectives: populational, behavioral, and biological.
4. World Health Organization. The World health report 1999—Making a difference. http://www.who.int/whr/index.html
5. National Center for Health Statistics. http://www.cdc.gov/nchswww/
6. Hawaii Department of Health: http://www.hawaii.gov/health/
7. Kasuya, RT, Sakai, DH. An evidence-based medicine seminar series. Acad Med 1996 71(5):548